Installation and user manual
Fuel terminal series TDE 100

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2. Introduction

2.1 For the user

About this manual

This installation and user manual serves for providing the user with the necessary information and instructions facilitating complete and effective installation, parameter setting, operation and maintenance of the fuel terminal series TDE 100. Therefore, read the corresponding chapters prior to proceeding with the installation or operation of the fuel terminal.
This manual has been carefully worked out by the manufacturer and is an integral part of any fuel terminal delivery according to the CE directive.
The manual is arranged in individual topic-related chapters and sections and has a logical structure (learn - prepare - use - maintain).
The manual and any attached documents must be kept in a safe place within reach during the whole service life of the fuel dispenser. Thus, it also constitutes an information source for operation settings and error elimination with regard to the fuel terminal.
This manual reflects the technical state-of-the-art at the date of fuel terminal sale or delivery.
This manual is subject to modifications and updates resulting from further developments.

Intended use

The fuel terminals of the TDE 50 /100 series are only disigned for use in company-based fueling stations as the fuel terminals are not certified. This is why the fuel terminal cannot be used for settlement/billing operations towards third parties.

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2.2 Safety instructions

General

The user is liable for the observance of the contents of this manual. Any use contrary to the designated use described in this manual is not permitted. The user is solely responsible for any damage resulting from such use.

The safety instructions are not only intended for assuring the own safety but also for the protection of persons not involved against damage to property and body. Safe operation of the fuel terminal is hereby garanteed.

The symbol shown (left-hand side) is used in this installation and user manual in order to draw special attention to important information and remarks.

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2.3 Safety symbols

The following symbols draw the attention to important special notes.

Attention!
This pictogram draws attention to legal regulations which must be complied with regarding assembly, commissioning and use of fuel terminals.

Warning!
Non-observance of these requirements can lead to injury of persons and/or damage to the fuel terminal.

Caution - electric voltage!
Warning against touching electric lines and contacts. Non-observance of these requirements can cause electric shock and lead to injury of persons and damage to property.

Explosion hazard!
Special care is required in the case of spilled fuel. Inflammable vapours may easily lead to explosion or deflagration. Therefore, such fuel must be removed immediately by means of suitable absorbent means.

Electrostatically endangered components, ESD!
This means that any contact with the contact surfaces or electr. components may lead to the destruction of the electronic control unit and put the fuel terminal out of service.

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2.4 Additional important symbols at the fuelling station site

Explosion hazard

No smoking

No mobile phones

No open fire

The “No mobile phones” sign is especially important if one uses the mobile phone while refuelling motor gasoline at the same time. Deflagration may occur when activating the buttons.

2.5 Basic safety instructions

Protection and safety devices

Any protection and safety devices must be checked regularly, but at the latest when carrying our maintenance work.
They may never be bypassed or ignored.
Any removed safety and proection devices must be:

- mounted again before putting into operation
- checked for correct functioning.

Make sure that the safety devices at the installation site (e.g. Emergency Stop button, fire fighting devices) are visible and easily accessible.

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2.6 Obligations of the operator

Attention!
The fuel terminal is a complex unit and must fulfill high requirements. Therefore, the operator is obliged to carry out the following protection measures and to observe the safety instructions.

Power supply

- Before putting the fuel dispenser into operation, the electric power supply and the correct wiring must be checked in order to prevent electric shocks and to ensure explosion protection (fuels are combustibles of class I).

Lighting

- Ensure sufficient illumination of the refuelling area.

Out of operation

- When not operated, the fuel terminal must be protected against unauthorized use.

2.7 Compliance with instructions and regulations

Overview

- UVV - Accident prevention regulation
- VdTÜV bulletin 651 “Electric equipment of fuelling stations”
- TRbF - Technical rules for inflammable liquids
- GefStoffV - Regulations for hazardous substances
- VbF - Regulations for inflammable liquids

- VAwS - Regulations for installations used for storage, filling and handling of substances hazardous to water
- VLwF - Regulations for the storage of liquids hazardous to water
- VDE regulations
- 21. BimSchV - Regulations regarding the Federal Immission Control Law

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ESD

- Electro Static Discharge.
  Under daily conditions, persons and tools may be electrostatically charged by friction. When touching electronic components, this charge may lead to discharge and thus to destruction of the components or circuit boards.
- Therefore, this energy must be reduced by touching the protective earth (metallic housing parts) before proceeding with any work in the interior of the pump head.

Directives

The fuel terminals are designed for use in business and industrial areas and fulfill the requirements of the

- EMC directive 89/336/EEC
- Low-voltage directive 73/23/EEC
- Machinery directive 98/37/EC
- En DIN 13617-1:2004

Installation instructions

To ensure compliance with the above mentioned directives during fuel terminal installation, you must:

observe the installation instructions described in this manual and make sure that the metallic housing parts of the fuel dispenser and the earthing conductor are connected to the same potential and no compensation current may flow.

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2.8 Warranty

Important!
The company K + S grants a warranty for the fuel terminal within the scope of the “General Terms and Conditions (AGB)”.

Exclusion of warranty

Warranty claims are void if one of the following points is not observed and complied with:

Personnel

- Any work as well as any interventions on the electronics of the fuel terminal require special knowledge and may only be carried out by authorized companies. The company K + S is not liable for any damage resulting from incorrect maintenance or incorrect intervention.

Original spare parts

- Any modifications of the fuel terminal carried out without the explicit approval of the manufacturer lead to the **exclusion of all liability claims** towards the manufacturer. This also applies to the use of spare parts which are not produced or released by the company K + S.

Delivery

The correct functioning, safety and accuracy of each fuel terminal are checked in the factory. The fuel terminal is delivered together with the required approval certificates.

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3. General product information

3.1 Overview

Manufacturer

K + S ELEKTRONIK GmbH
Fuel dispensers
System engineering
Pump electronics
Fuel data acquisition

Eichendorffstr. 31
D-78054 VS-Schwenningen

Phone: +49 (0) 77 20 - 96788-20
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Product Fuel terminal, not calibratable.

Product designation Fuel terminal series TDE 100

3.2 Scope of performance of the hardware

The hardware of the fuel terminal TDE 100 only includes the minimum required routines needed for the realization of a low-cost fuel terminal which is mainly intended for the integration into a fuel dispenser. This fuel terminal is of course also available as a stand-alone version or as a wall mounted unit. The non-calibratable version of the fuel terminal TDE 100 is only designed for use in company-based filling stations.

3.2.1 Construction

Built-in model: Front panel made of stainless steel, stainless steel keypad comprising 12 keys, LCD display 2 x16 digits, character height 10 mm with backlight illumination enabling easy reading and with transponder antenna for reading simple transponder tags. The back of the unit consists of a steel panel housing. Except for the power supply unit and the motor contactor, all components required for operation are located in the inside of the fuel terminal housing.

Wall mounted unit: High-quality metal housing made of zincor, material thickness 1.5 mm with powder coating.

Stand-alone model: High-quality metal housing made of zincor, material thickness 1.5 mm with powder coating. The front panel can be locked by means of a cylinder lock.

3.2.2 Technical specifications

- It is possible to serve one pump using any possible version: e.g. large-volume/small-volume dispensing with one or two hydraulic units, two encoders. High-performance dispensing via one or a double hydraulic system.

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- The fuel terminal has a flexibly partitioned memory area. During the initial commissioning, you can determine the maximum number of badges to be managed (50, 100, 200, 400). The number of fueling operations to be recorded (2000,1900, 1800, 1600) results from this setting. In the standard configuration, the memory of the fuel terminal is configured to 400 badges and 1600 fueling operations.

- Driver-specific as well as vehicle-specific badges can be used. (A, B and A + B operation) each one with or without PIN. Two 16-byte text fields enabling various input options are allocated to each badge. The fuel data can be called via PC (simple PC evaluation program, alternatively also the product Autopoll). The PIN number, date, time, type of fuel and quantity are recorded. Optionally, the km reading and the vehicle number can also be recorded. An integrated evaluation is also planned. Evaluation via the display is also possible using the data relating to the date, time, driver and vehicle. However, in this case the installation of a printer (option) would be useful.

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4. Operating mode

4.1 Prior to initial commissioning

► **Make sure that the initial commissioning of the fuel terminal is carried out only by trained and specialized personnel** ◄

4.1.1 Visual check

- The tight seat of all screw connections or fastenings must be checked.
- The cables must be checked for cable break, abrasion signs and cracks. The individual pins must be checked for correct functioning or damage which may have been caused during tranport.
- The hardware must be checked for loose parts which may affect the operation.
- Pay attention to the connection conditions of the DIN profile rail (terminals L1, N.PE).
- The tight seat of plug connections must be checked.

4.2 Commissioning

- Check the switch settings of the fuel terminal

- Emergency mode switch **ON / OFF » OFF**
  Switch set to - **ON »** bridges the fuel terminal **»** continuous operation

- Switch the fuel terminal on 230 VAC 50 HZ

- The fuel terminal is already preinialized when it is delivered. Preinitialization with operator transponder

- An operator badge and a custombер badge are already configured

  Operator transponder PIN: 9999 Name: Operator

  Customer transponder PIN: 0001 Name: Test

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- Switch the fuel terminal on 230 VAC 50 HZ
- The following message appears on the display

Fuel terminal designation and software version number
Duration of displaying: 3 seconds

4.2.1 Memory test

- The plausibility of the contents of all memories is checked

0	Correctness of the parameters
1,2	Correctness of the badge data
3,4,5,6,7,8,9	Correctness of the fuel data records

Duration of displaying: 3 seconds

- Once the memory test has been sucessfully completed, the fuel terminal is again in the operating mode and expects the presentation of a transponder in front of the reading point.

4.2.2 Fueling operation

- Request to present the transponder in front of the reading point
  » **Customer transponder**

  Presentation of an operator transponder
  » The fuel terminal changes from the **operating mode** to the **service mode**

- Reading-in of the transponder data

  » Then the fuel terminal searches the memory for this badge and saves the data in the working memory. Depending on the badge data read in, the next input prompt follows. Generally, the request to enter the PIN number then follows.

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- Enter the PIN number via the keypad

PIN number not correct » new input request

This procedure can be repeated up to three times. However, if the PIN number entry is still not correct after the third trial, the program is canceled and the fuel terminal is reset to the initial setting.

- PIN number correct » next prompt

If no further input requests, such as the entry of the vehicle number or km reading, are defined in the badge, the fueling operation starts.

- Request to remove the nozzle, if it has not yet been removed

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- The pump is switched on and the pumping operation starts

The flow meter or the piston meter supplies the necessary counting pulses for the CPU and the display via the encoder. This procedure stops when the noozle is put into place again or the allowed quantity has been reached. In this case, the pump motor is switched off and the data of this fueling operation is permanently saved in the fuel operation memory.

- If no fueling operation follows, the dispensed quantity is displayed during the time defined in parameter 35.

- The maximum fueling time is defined in seconds in the parameter 36. At the end of the set time, the fueling operation is terminated and saved.

► **The maximum admissible fueling time is normally specified by the fire protection, safety or environmental authorities. If the specified value is not known, please contact the competent water protection authority.** ◄

4.2.3 Error messages during the fueling operation

- In case of error, the fueling operation is terminated and the data is saved with the correspoonding error code. The error is displayed in clear text on the display.

» » » To continue, the fuel terminal must be switched off and on

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5. Service mode

► There are two possiblities to access the service mode:

A) Via the operation / service switch

» **Service/Operation switch** set to position : **Service**
» **Calibration On/Off** set to position: **On**
(If parameters are to be modified or a new badge is to be created)

B) Via the operator badge with the PIN number 9999

5.1 Short description of the parameters and their functions

» **_____ = Input of numbers**
» **OK = OK**
» **Esc = Delete**

- **Parameter 01** ► Status / check instruction

- **Parameter 02** ► **TDE 100 V40.11**
  Unit designation and program version, only displayed.
  The display switches back to the basic menu after
  3 seconds

- **Parameter 03** ► **Checksum : xxxx**
  Only displayed. Switches back to the basic menu after
  3 seconds

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- **Parameter 04** ► **Address 1**
  Only displayed. Switches back to the basic menu after 3 seconds
- **Parameter 05** ► **Format badge memory**
- **Parameter 06** ► **Format badge memory**
- **Parameter 07** ► **Not used**
- **Parameter 08** ► **Not used**
- **Parameter 09** ► **Not used**
- **Parameter 10** ► **Not used**
- **Parameter 11** ► **Quantity in liters**
  The current value of the last fueling operation (quantity) is displayed or can be requested, also possible during the fueling operation (online monitoring)
- **Parameter 12** ► **Pulse value pump point 1 (ZP1)**
- **Parameter 13** ► **Pulse value pump point 2 (ZP2)**
- **Parameter 14** ► **Not used**
- **Parameter 15** ► **Not used**
- **Parameter 16** ► **Not used**
- **Parameter 17** ► **Not used**
- **Parameter 18** ► **Not used**
- **Parameter 19** ► **Not used**
- **Parameter 20** ► **Not used**

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- **Parameter 20** ► **Not used**

- **Parameter 21** ► **Date**
  Display format JJ:MM:DD can be modified and accepted with **OK** , or deleted with **Esc** in case of incorrect entries.

- **Parameter 22** ► **Clock**
  Display format HH:MM:SS can be modified and accepted with **OK** , or deleted with **Esc** in case of incorrect entries.

- **Parameter 23** ► **Not used**

- **Parameter 24** ► **Not used**

TDE 100
pulse correction factor: 5.0000 and 0.0001 standard: 0,0100
For two-channel encoder 1 to 250 pulses per liter

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- **Parameter 25** ► **See “Reading USB badges”**
- **Parameter 26** ► **See “Reading USB fueling data”**
- **Parameter 27** ► **See “Reading USB parameters”**
- **Parameter 28** ► **Not used**
- **Parameter 29** ► **Not used**
- **Parameter 30** ► **Total pump point 1 + 2 (ZP1 + ZP2)**
- **Parameter 31** ► **Current check encoder On / Off**
  Monitoring of the encoder 0 = without current check
  1 = with current check. The current check should display the error E 81 when falling below the value of 10 mA (cable break) and when exceeding the value of 80 mA (short circuit).
- **Parameter 32** ► **Km reading**
- **Parameter 33** ► **Total fuel stock**
  Quantity determined by calculation in the reservoir.
- **Parameter 34** ► **Filling of the tank - filling quantity**
  Must be entered manually after filling the reservoir. This quantity is added to the old fuel stock (P33).

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- **Parameter 35** ► **Displaying time in seconds**
  Time in seconds during which the dispensed quantity is shown on the display after completion of the fueling operation.

- **Parameter 36** ► **Fueling time in seconds**
  Maximum fueling time in seconds.

- **Parameter 37** ► **Pre-flow suppression on the display**
  Number of pulses not displayed after starting the fueling operation. This prevents the counting of hose inflations.

- **Parameter 38** ► **Zero-fueling counter**
  As a defective encoder (IG) may cause zero-fuelings, the zero-fueling monitoring function is used. After each zero-fueling, this value is reduced by 1 until the value 0 is reached. Then the fuel terminal is locked.
  (Parameter is 00). It can be unlocked again by entering a new maximum value.

- **Parameter 39** ► **Max. dispensing value pump point 1 + 2 (ZP1 + ZP2)**

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5.2 Creation of a new badge

- **Parameter 40** ► **Creation of a new badge**
  Serial number of the badge

» Present the new transponder to the reading point
» The transponder number is displayed

» Enter the badge type 0 to 6
» Enter a designation for the badge type
► 1 user
► 2 operator
► 3 A/B badge
► 4 vehicle badge (without PIN)

» Enter the desired PIN
» Key **Esc** - enables PIN number correction
» Key **OK** - confirm and create badge

» Name
» Input of km reading
» Type
» Max. fueling quantity

► **The operator badge has the special badge number 9999** ◄

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» Enter and confirm the number or number combination printed on the transponder

► **The correct assignment of this number and its docu mentation are very important as, when loosing the badge, it is only possible to delete and disable the badge on the terminal by means of this number. In addition, when a lost badge is found again, this number is also required to enable (release) the transponder again.** ◄

» The entry of a 2-digit company number allows you to assign a clear text to the evaluation in the PC program

» Here it is possible to define any text comprising 16 characters. Generally, this is the name of the user.

» Confirm with **OK**

» Back to the main menu

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5.3 Locking/modifying badges

- **Parameter 41 ► Lock badge**

» Enter and confirm the number printed on the transponder to be locked

» Confirm with **OK**

» The message is displayed during 1 second, then back to the main menu

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- **Parameter 42** ► **Lock badge**

» Enter the number printed on the transponder to be deleted and confirm with **OK**

» Correct with **ESC** in the case of an incorrect entry

» If you wish to exit the program here, press → **OK** → the program switches to the next query

» **ESC** → You exit the program, no badge is deleted

» Continue with **OK**

» Badge is deleted

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- **Parameter 43** ► **Modify badge**

» Enter the number printed on the transponder to be released and confirm with **OK**

» Confirm with **OK**

» The messge is displayed during 1 second, then back to the main menu

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- **Parameter 44** ► **Nummernerkennung**

► **Badge information**

If the number printed on the transponder can no longer be read/recognized, the number can be enquired using this service parameter

» Show/present the transponder

» Confirm with **OK** and back to the main menu

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- **Parameter 45 ► Not used**
- **Parameter 46 ► Not used**
- **Parameter 47 ► Not used**
- **Parameter 48 ► Not used**
- **Parameter 49 ► Not used**

5.4 Data transmission

- **How can the data transmission between the fuel terminal and the PC be realized?**

  ► No connection (USB stick)
  ► Direct connection (data line)
  ► Standard modem
  ► Radio modem (GSM)

- The version to be used depends on the local conditions as well as on the distance between the fuel terminal and the PC. For example, the max. distance of 15 m must not be exceeded in the case of direct connection (without line amplifier).

- The suitable transmission rate depends on the data transmission method or on the installed modem and the quality of the telephone line.

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5.5 Quantity display

- For the fuel dispenser, the dispensed liters (or kilograms in case of gas dispensers) of the internal pump point can be shown on the display of the integrated fuel terminal during the fueling operation. This means that during the fueling operation the display shows the quantity continuously.

- The maximum time in seconds during which this quantity/volume display remains after putting the nozzle back into place is generally set to 20 seconds.

5.6 Settings regarding the fuel type table

- Generally, it is possible to define 9 fuel types in the fuel terminal.
  To guarantee clear assignment of **tank:fuel type:pump point** only the fuel types really used should be defined.

- The following settings are made for each fuel type in the fuel type table:

  ► Assignment of the fuelt ype number to the fuel type designation
  ► Quantity unit of the fuel type (“liter” for liquid fuel types, “kg” for gases)

5.7 USB query process badges

» Show/present the operator transponder

» Plug in the USB stick

► **Make sure that the USB stick is not dirty, humid or mechanically deformed.** ◄

» Enter the program number for the USB downloading:

No. 25 for badges
No. 26 for fueling data
No. 27 for parameters

Example - no. 25 for badges

» The fuel terminal establishes the contact with the USB stick. In the second line, the number of attempts required by the fuel terminal to establish a safe connection. If this value exceeds 1000, the process is cancelled and the error message **E 60** is issued

» This message is displayed for approximately 1 second

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» If you wish to read only the new badges, i. e. the badges generated since the last read-out?
ESC = jump to the next selection
Ok = confirm

The newly generated badges are transferred into the existing file and added to the file end. If this file is not changed on the PC, it contains a chronology of all badges.

All badge records stored in the memory are transferred into the file. The file is overwritten from the beginning. If the file contains data records which are older than those stored in the memory of the fuel terminal, this data is lost. It is recommended to save a backup copy on the PC.
ESC = to exit the servcice mode, back to the main menu
Ok = data transfer is running

» This message is displayed for 1 second.
Note for opening the file in the USB stick

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» All data contained in the fuel terminal memory is saved in the USB stick under the file name: **TK.TXT**
A four-digit counter shows the consecutive number of saved data records. The same applies to the function “Save NEW badges”

» The message is displayed for 1 second.
A note is displayed telling you that saving is completed and the USB stick can be unplugged.

► **Note: If the USB stick is unplugged too early during the saving process, this may cause data loss.** ◄

5.8 USB query process fueling data

» **Show/present the operator transponder**

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» Plug in the USB stick

► **Make sure that the USB stick is not dirty, humid or mechanically deformed.** ◄

» Enter the program number for the USB downloading:

No. 25 for badges
No. 26 for fueling data
No. 27 for parameters

Example - no. 26 for fueling data

» The fuel terminal establishes the contact with the USB stick. In the second line, the number of attempts required by the fuel terminal to establish a safe connection. If this value exceeds 1000, the process is cancelled and the error message **E 60** is issued

» This message is displayed for approximately 1 second

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» Do you wish to read only the new fueling data generated since the last read-out?
ESC = jump to the next selection
Ok = confirm

The newly generated fueling data is transferred into the existing file and added to the file end. If this file is not changed on the PC, it contains a chronology of all fueling data.

All fueling data records stored in the memory are transferred into the file. The file is overwritten from the beginning. If the file contains data records which are older than those stored in the memory of the fuel terminal, this data is lost. It is recommended to save a backup copy on the PC.
ESC = to exit the servcice mode, back to the main menu
Ok = data transfer is running

» This message is displayed for approximately 1 second. Note for opening the file in the USB stick

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» All data contained in the fuel terminal memory is saved in the USB stick under the file name: **TK.TXT**
A four-digit counter shows the consecutive number of saved data records. The same applies to the function
“Save NEW badges”

» The message is displayed for 1 second.
A note is displayed telling you that saving is completed and the USB stick can be unplugged.

► **Note: If the USB stick is unplugged too early during the saving process, this may cause data loss.** ◄

5.9 USB query process parameters

» **Show/present the operator transponder**

» Plug in the USB stick

► **Make sure that the USB stick is not dirty, humid or mechanically deformed.** ◄

» Enter the program number for the USB downloading:

No. 25 for badges
No. 26 for fueling data
No. 27 for parameters

Example - no. 27 for parameters

» The fuel terminal establishes the contact with the USB stick. In the second line, the number of attempts required by the fuel terminal to establish a safe connection. If this value exceeds 1000, the process is cancelled and the error message **E 60** is issued

» This message is displayed for approximately 1 second

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» All parameters records stored in the memory are always transferred into the file.
ESC = to exit the servcie mode, back to the main menu
Ok = data transfer is running

» This message is displayed for 1 second.
Note for opening the file in the USB stick

» All data contained in the fuel terminal memory is saved in the USB stick under the file name: **PA.TXT**
A four-digit counter shows the consecutive number of saved data records. The same applies to the function
“Save NEW badges”

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» The message is displayed for 1 second.
A note is displayed telling you that saving is completed and the USB stick can be unplugged.

► **Note: If the USB stick is unplugged too early during the saving process, this may cause data loss.** ◄

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6. Data call

- Via the PC

  > Baud rate = 19200 bd fixed
  > Format = 8 data bits,no parity,1 stop bit
  > Serial interface RS 232
  > Only ASCII characters are transferred

- The suitable transmission rate depends on the type of the data transmission or on the installed modem and the quality of the telephone line.

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6. Pin assignment

- See PC - program description

7. Cases of error / warnings

- **Error E1** ► **Nozzle**
  Occurs after switching the fuel terminal on. The nozzle is not inserted in the nozzle boot. This is to avoid any restarting of the pump during a fueling operation after a power failure.

- **Error E81** ► **Pulse error pump point 1 (ZP1)**
  If faulty pulses, false pulses of the encoder or failures of the connection line are caused, the fueling operation is stopped and the fueling data is saved together with the error message.
  This procedure applies to all errors which can occur during a fueling operation.

- **Error E82** ► **Current fault encoder pump point 1 (ZP1)**

- **Error E91** ► **Pulse error pump point 2 (ZP2)**

- **Error E92** ► **Current fault encoder pump point 2 (ZP2)**

- **Error E70** ► **Memory error**
  A memory test is always performed each time the fuel terminal is switched on.

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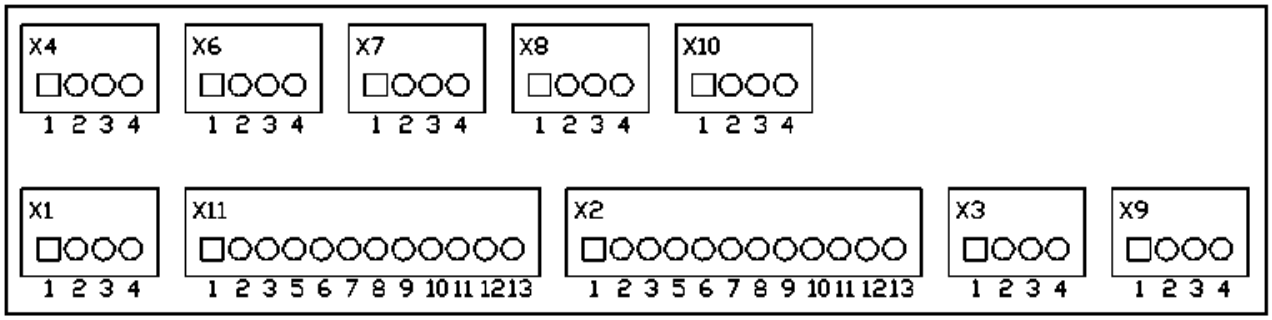
8. Electric installation

8.1 PIN assignment



- **X1.1** +24 volt
- **X1.2** +24 volt
- **X1.3** GND
- **X1.4** GND

- **X3.1** DV2 change-over contact
- **X3.2** DV2 normally open contact
- **X3.3** Reserve output
- **X3.4** Reserve output

- **X2.1** Motor 1 normally closed contact
- **X2.2** Motor 1 change-over contact
- **X2.3** Motor 1 normally open contact
- **X2.4** Motor 2 normally closed contact
- **X2.5** Motor 2 change-over contact
- **X2.6** Motor 2 normally open contact
- **X2.7** AV1 change-over contact
- **X2.8** AV1 normally open contact
- **X2.9** DV1 change-over contact
- **X2.10** DV1 normally open contact
- **X2.11** AV2 change-over contact
- **X2.12** AV2 normally open contact

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- **X4.1** RS 232 (ser. interface no. 3)
- **X4.2** RS 232 (ser. interface no. 3)
- **X4.3** GND
- **X4.4** GND

- **X6.1** +5 volt
- **X6.2** RS485A (ser. interface no. 1)
- **X6.3** RS485B (ser. interface no. 1)
- **X6.4** GND

- **X7.1** +5 volt
- **X7.2** RS 485 A / RS 232 / 20mA (ser. interface no. 4)
- **X7.3** RS 485 B / RS 232 / 20mA (ser. interface no. 4)
- **X7.4** GND

- **X8.1** +5 Volt
- **X8.2** RS 485 A / RS 232 / 20mA (ser. interface no. 2)
- **X8.3** RS 485 B /RS 232 / 20mA (ser. interface no. 2)
- **X8.4** GND

- **X9.1** Enable output 1
- **X9.2** Enable output 1
- **X9.3** Enable output 2
- **X9.4** Enable output 2

- **X10.1** +24 volt
- **X10.2** RS232
- **X10.3** RS232
- **X10.4** GND

- **X11.1** ZV1
- **X11.2** ZV1
- **X11.3** ZV2
- **X11.4** ZV2
- **X11.5** IG1 A
- **X11.6** IG1 B

- **X11.7** IG2 A
- **X11.8** IG2 B
- **X11.9** + 5V IG 1
- **X11.10** + 5V IG 2
- **X11.11** GND IG1
- **X11.12** GND IG2

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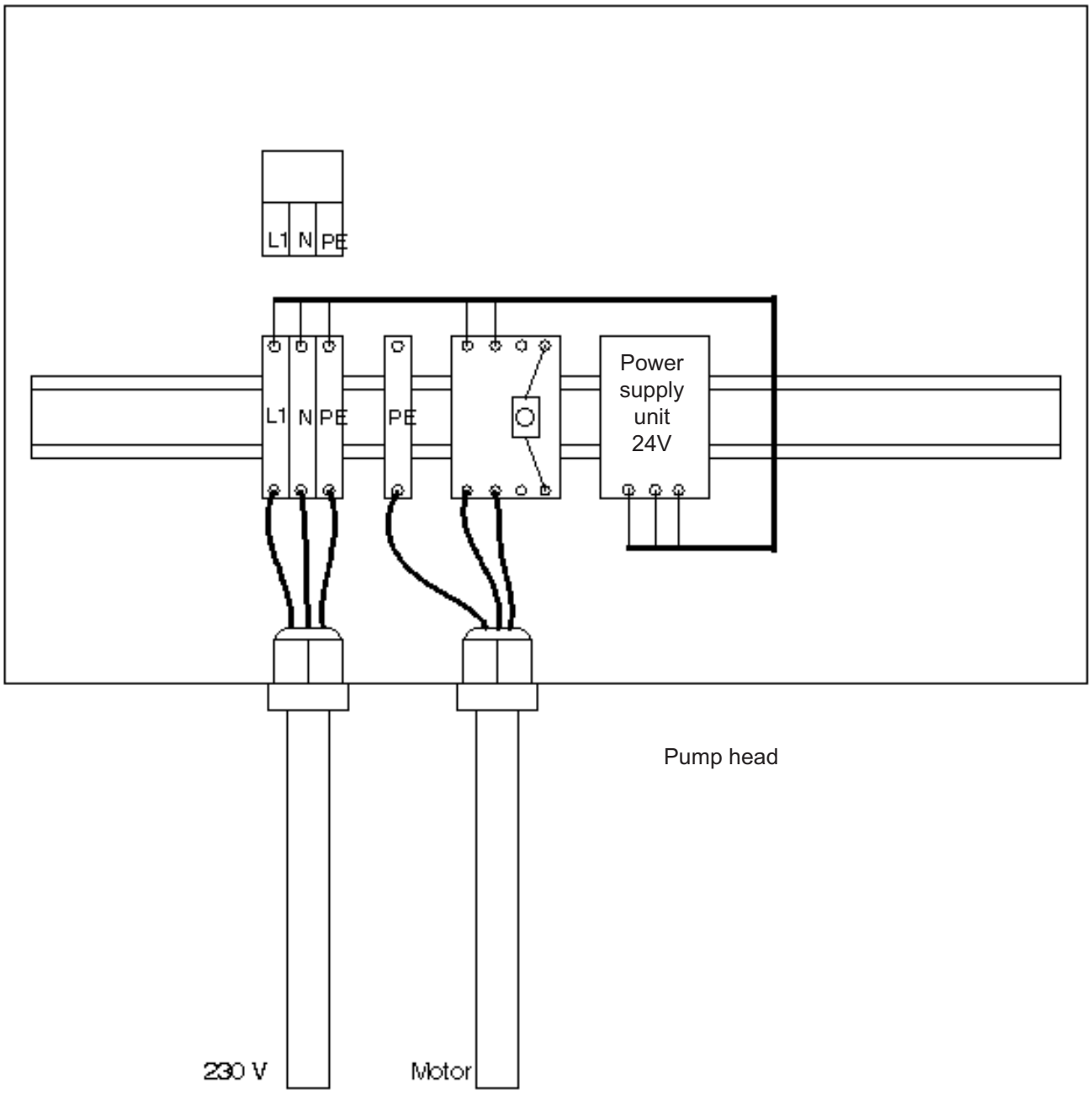
8.2 Wiring diagram



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9. Test certificates and other certificates

9.1 EC declaration of conformity

EG-Konformitätserklärung
EC - Declaration of Conformity
EC - Declaration de Conformité

Wir **K + S Elektronik GmbH**
We
Nous

Anschrift **Eichendorffstr. 31**
Address **D-78054 VS-Schwenningen**

erklären, dass das Produkt mit der Bezeichnung, Typ, Modell:
declare, that the product with name, type, model:
déclarons, que le produit nom, type, modèle:

Tankautomat Serie TDE 50 / 100

mit den Anforderungen der Normen und Richtlinien
fulfils the requirernents of the standards and regulations of the Directive
satisfait aux exigences des normes et directives

Maschinen-Richtlinie 98/37/EG, 1998
EN 292-1/2 Sicherheit von Maschinen
EN 60204-1 Elektrische Ausrüstung von Maschinen
Niederspannungs Richtlinie 73/23/EWG
EMV-Richtlinie 89/336/EWG
EN 55011 (1998) + A1 (1999) + A2 (2002), Limit Class: B
EN 61000-3-2 (2006-04)
EN 61000-3-3 (1995-01) + A1 (2001-06) + A2 (2005-11)
EN 61000-4-2 (2001)
EN 61000-4-3 (2001)
EN 61000-4-4 (2001)
EN 61000-4-6 (2001)
EN 61000-4-11 (2001)

und den Prüfberichten übereinstimmt und damit den Bestimmungen entspricht.
and the test reports and therefore corresponds to the regulations of the Directive.
et les rapports d'essais et, ainsi, correspond aux règlements de la Directive.

Ort und Datum der Ausstellung: **VS-Schwenningen, den 28. August 2009**
Place and date of issue:
Lieu et date d'établissement:

Name und Unterschrift des Befugten: **Leitung Entwicklung**
Name and signature of the authorised persons:
Nom et signature des personnes autorisées:

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9.2 QMS certificate

TÜV SÜD Management Service

ZERTIFIKAT

Die Zertifizierungsstelle
der TÜV SÜD Management Service GmbH
bescheinigt, dass das Unternehmen

K + S Elektronik GmbH
Heinrich-Hertz-Str. 9
D-78052 Villingen-Schwenningen

für den Geltungsbereich

Entwicklung, Herstellung und Vertrieb von Tankanlagen mit elektronischer Anzeige

ein Qualitätsmanagementsystem
eingeführt hat und anwendet

Durch ein Audit, Bericht-Nr. **70729659**
wurde der Nachweis erbracht, dass die Forderungen der

ISO 9001: 2000

erfüllt sind. Dieses Zertifikat ist gültig bis **2010-10-15**
Zertifikat-Registrier-Nr. **12 100 32328 TMS**

München, 2007-10-23

QMS-CA-ZM-DE-03

TÜV SÜD Management Service GmbH • Zertifizierstelle • Ridlerstraße 65 • 80339 München • Germany